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# ANALYSIS OF CURRENT LIGHT INFANTRY SOLDIER SYSTEM COSTS

By

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and  
Dianne St. Jean

April 1993

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With the rapid advancement of technology and the resulting enhancements in soldier capabilities, the Army has recognized the need to view, develop and field future individual soldiers as integrated combat systems. As a new concept, no database detailing annual costs for the present Soldier System exists. This effort develops the framework or methodology to determine current and future Soldier System costs, and develops the baseline annual costs for the current Soldier System. Current Soldier System costs are based on the individual infantryman of a Rifle Squad in an Infantry Company (Light) (TOE 07-017L000). Total estimated annual cost for the current Soldier System is \$138.3K per year. The expenses of current soldier's clothing and equipment at \$1.6K per year represents only slightly more than 1% of the total annual Soldier System costs.					
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## PREFACE

This study of Light Infantry Soldier System costs was performed by the authors in the Advanced Systems Directorate at U.S. Army Natick Research, Development and Engineering Center during the period October 1992 to January 1993. The funding was Program Element 62786, Project AH98, Task SM, and Work Unit DA333492.

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# **ANALYSIS OF CURRENT LIGHT INFANTRY SOLDIER SYSTEM COSTS**

## **EXECUTIVE SUMMARY**

The objective of this effort was to develop the framework or methodology to determine current and future Soldier System costs, develop the baseline costs for the current light infantry Soldier System for future soldier system cost-effectiveness evaluations, and identify where or how future soldier systems may potentially impact overall system costs. For this effort, baseline costs for the current Soldier System are based on an infantry soldier operating within a Rifle Squad of a Rifle Company (Light) (TOE 07-017L000)

The infantry soldier of the future will be outfitted and equipped with technologically advanced equipment. Capability enhancements provided by incorporated advanced emerging technologies can significantly increase the soldier's overall combat effectiveness and survivability. With the rapid advancement of technology and the varied nature and complexity of potential future operations, the Army recognized the important role of individual soldiers in future operations and the resulting need to view, develop, and field the individual soldier as an integrated combat weapon system. The Soldier System perspective is essential to maximize the potential benefits of alternative emerging technologies and their resulting impact on overall soldier effectiveness.

In general, the clothing and equipment items associated with today's current Soldier System are relatively uncomplicated and inexpensive, as compared to that envisioned for future Soldier Systems. However soldier clothing and equipment represent only one component of overall Soldier System costs. To validate the overall benefits or merits of future Soldier Systems, as compared to the current Soldier System, it is first essential to delineate and understand the system-level costs for the current Soldier System.

The Soldier System consists of the INDIVIDUAL and all the EQUIPMENT/SUPPLIES that are worn, carried, or consumed by him or her plus any associated SUPPORT PERSONNEL in the force structure. Annual costs for the Soldier System consist of sustainment of the soldier (i.e., pay, benefits, retirement, training, etc.), sustainment of the soldier's equipment and supplies (i.e., maintain, repair, replace), and sustainment of support personnel in the force structure to support/maintain the Soldier System.

Total estimated annual cost for the current Soldier System is \$138.3 K per year which includes individual soldier personnel cost - \$39.5 K, soldier clothing and equipment - \$1.6K, soldier supplies - \$2.6K, division support - \$40.8K, and Echelon Above Division support - \$53.9K. Current Soldier System equipment represents about 1% of total system cost. What does this mean? From a system perspective, even significant increases in equipment costs translate into only minor system level cost increases. For example, a 500% increase in soldier clothing and equipment cost for a future Soldier System would translate into about a 6% increase in total

Soldier System cost. In turn, for this increase to be cost effective, the future Soldier System need only generate a 6% increase in soldier effectiveness to be more effective than the current Soldier System.

**CONCLUSION.** The current expenses for soldiers' clothing and equipment represent about 1% of the total Soldier System cost. The investment in advanced equipment/material technologies for future Soldier Systems, even if significantly more expensive, need generate only minimal improvements in overall Soldier System effectiveness to be cost-effective.

## INTRODUCTION

The infantry soldier of the future will be equipped with technologically advanced equipment. Capability improvements provided by these advanced emerging technologies will significantly increase the soldier's overall combat effectiveness and survivability. In the past, the individual soldier was viewed somewhat like a mannequin onto which an assortment of independently developed items, including individual clothing, equipment, weapons, and supplies, were simply draped. With the rapid advancement of technology, the nature and complexity of future battlefields, the evolving national military strategy, the expanding and varied nature of potential future operations, and the role of the individual soldier in the future, the Army has recognized the need and importance to view, develop, and field the individual soldier as an integrated combat system. A Soldier System perspective is essential to maximize the potential benefits of alternative technologies and their resulting impact on overall soldier effectiveness.

The Soldier System is a complex combat system. Soldier System combat effectiveness is a function of five soldier capabilities, specifically, command and control, lethality, survivability, mobility, and sustainability. In addition, these capabilities are not independent. That is, an improvement in one capability may have a synergistic impact on another capability. For example, a soldier's survivability may be enhanced by improved protective equipment, increased dispersion permitted by improved communication capabilities, improved target acquisition or intelligence collection/dissemination capabilities, improved lethality, improved detection avoidance, increased mobility due to reduced load or improved load-bearing designs, or enhanced soldier alertness due to improved nutritional sustainment. Each capability in turn is dependent on several other second-level factors or parameters. To compound overall system complexity, the relative importance or impact of each capability on overall soldier system effectiveness is dependent on each mission or operation.

Efforts in support of the Soldier System concept include the following. A Soldier Modernization Plan was prepared and is included in the overall Army Modernization Plan. A Tech Base Executive Steering Committee (TBESC) for the Soldier System was formed in 1990 to manage and direct an integrated technology base program effort with regard to the Soldier System. To demonstrate the potential impact of advanced technologies on soldier system capabilities, a Soldier Integrated Protective Ensemble (SIPE) Advanced Technology Demonstration (ATD) was recently completed. In addition, to investigate the complex Soldier System performance issue, a TBESC Soldier System Modeling Group was formed.

## OBJECTIVE

The Soldier System is a new concept. As a result, a database of annual costs for today's Soldier System does not exist. Due to advanced technologies, the cost of the future soldiers' equipment, to include procurement and annual support costs, may be significantly more expensive than the current soldiers' equipment. However, equipment costs represent only one of several components that comprise overall Soldier System costs. The objective of this effort was to

develop the framework to establish Soldier System costs, determine the resulting baseline annual costs for the present day Soldier System, and identify where and how future soldier systems may potentially impact system level costs. Baseline costs for the present soldier system are essential for cost benefit, effectiveness, or other comparative analyses of future and current soldier systems.

## SCOPE/ASSUMPTIONS

1. The analysis focuses on the average annual cost for a light infantry soldier (Military Occupational Specialty (MOS) 11B) of a Rifle Squad, within a Rifle Company (Table of Organization and Equipment (TOE) 07-017L000) of a Light Infantry Battalion (TOE 07-016L000), within a Light Infantry Division (TOE 77-000L000).
2. The representative TOE units in the study are assumed to be fully manned and fully equipped (100%) at Authorized Level of Organization 1 (ALO 1) as detailed by the units TOE.
3. Annual costs represent normal or typical peacetime costs and are estimated in FY92 dollars.

## APPROACH

Historically, highly visible weapon platforms such as aircraft, ships, tanks, artillery and other similar weapons have been viewed and managed as major combat systems. For these types of systems, associated cost elements have typically been identified, tracked, and maintained at the system level. Similar data for other equipment items/nonmajor systems have typically not been tracked and maintained at the system level. The Soldier System is a new concept for which costs have not been tracked at the system level. Therefore, the approach for this analysis was to develop the framework for soldier system costs, to identify relevant databases and information sources, and to utilize or extrapolate pertinent data from these data/information sources to the maximum extent possible. Primary data/information sources for this analysis include the following:

**Army Manpower Cost System (AMCOS).** The AMCOS cost estimation model was developed by the Systems Research and Applications Corporation for The Army Research Institute (ARI). The models incorporate all the necessary inputs to estimate life cycle annualized manpower costs at the MOS and grade level. For this effort, the AMCOS model was primarily utilized to determine the cost components and the resulting annual personnel cost impacts of the infantry soldier and all other soldiers within an Infantry Battalion (TOE 07-016L000).

**Force Analysis Simulation of Theater Administrative and Logistic Support (FASTALS).** FASTALS is a U.S. Army Concepts Analysis Agency (CAA) model. The FASTALS model is a macro force planning model which determines the support force structure requirements for a given combat force for a specific scenario/theater. Based on a U.S. Army Natick RD&E Center request, the CAA utilized the FASTALS model and performed the analysis to identify the echelon above division units necessary to support an Infantry Division (Light) in a generic campaign.

TABLE 1. SOLDIER SYSTEM COST CATEGORIES

COST CATEGORY	LEVEL OF DETAIL
INDIVIDUAL SOLDIER PERSONNEL COSTS	HIGH
SOLDIER EQUIPMENT/SUPPLY COSTS	HIGH
Indiv. Soldier Clothing (Personal)	"
Indiv. Soldier Equipment (Unit)	"
Indiv. Soldier Supplies	"
Squad Equipment	HIGH
INFANTRY BATTALION (LIGHT) SUPPORT	MEDIUM
Rifle Company Support	"
Hq & Hq Support	"
Unit Training	"
INFANTRY DIVISION SUPPORT	LOW
ECHELON ABOVE DIVISION SUPPORT	LOW

The Army Force Cost System (TAFCS), developed by the U.S. Army Cost and Economic Center (USACEAC), is a comprehensive force cost-estimating model. With the TAFCS model, a user can generate cost estimates for a variety of events in a unit's life cycle, including acquisition of resources, activation, annual operations, inactivation, movement, or modification. This model incorporates the most current Army cost estimating data and procedures and can be utilized to generate cost estimates for more than 1,100 units described by Standard Requirement Codes. For this effort, the TAFCS model was utilized to determine annual operations costs for all identified support units within the Infantry Division (L) or nondivisional force structure, which support the Infantry Battalions (L) or other combat units. Primary components of unit operations costs include: personnel costs (e.g. basic pay, allowances, special pay, permanent change of station costs, acquisition replacement personnel, etc.), direct and indirect unit training costs (e.g., spares, repair parts, supplies, transportation, ammunition, fuel, etc.), and other unit support (e.g., base operations, medical support, family housing, etc.). Annual operations costs for support units are allocated equally back across the Infantry Battalions (L) and other combat units based on combat unit strengths.

Other information/data sources include the following. The U.S. Army Support Activity provided cost data on individual clothing and individual equipment items. Training and Doctrine Command (TRADOC) Tables of Organization and Equipment (TOEs) were utilized to determine Rifle Squad personnel composition (i.e., number, MOS, and grade) and equipment authorizations, Rifle Company and Infantry Battalion (L) personnel authorizations, and unit composition of an Infantry Division (L). These were the primary data sources used for the analysis.

The framework utilized to develop Soldier System costs is presented in Table 1. The framework includes five primary categories with subelements for Soldier Equipment/Supply Costs and Infantry Battalion (Light) Support Costs. All identifiable and attributable Soldier System cost elements are assigned to one of these primary categories. Soldier System costs are obtained by summing the resulting primary category costs. The level of detail at which costs are developed range from HIGH for those categories closer to, or directly linked to, the Soldier System, to LOW for the more indirect or support-type categories. Rationale for this approach is that future

Soldier Systems may significantly impact the costs for those categories directly linked to the soldier (i.e., personnel, individual/squad equipment and supplies) but are less likely to significantly impact the cost of the more indirect categories.

A more complete description of each of the primary categories in terms of approach or methodology to establish costs, assumptions, breakout of cost elements/factors, available data and sources follows.

## SOLDIER SYSTEM COSTS

The development of Soldier System costs is based on the five cost categories listed in Table 1. The cost for each category is obtained by summing the costs associated with each cost element included in the category. Information provided in the main report relevant to each cost category includes: assumptions, category cost elements or factors, primary data/information sources, approach or methodology utilized to establish resulting Soldier System costs, current Soldier System summary cost impacts, and potential cost impacts of future Soldier Systems. More detailed information/data relative to current Soldier System cost/resource impacts is provided in the referenced Appendices.

## SOLDIER PERSONNEL COSTS

Assumptions/Approach. Current soldier system personnel costs are based on the costs associated with the personnel of a rifle squad of a Rifle Company (Light) (TOE 07-017L000). The rifle squad consists of nine individuals with a Military Occupational Skill (MOS) identifier 11B, infantryman. Composition of this rifle squad in terms of positions and grade and associated overall annual personnel cost are presented in Table 2. The average personnel cost is based on the grade mix of squad personnel and the annual costs associated with each grade.

TABLE 2. COMPOSITION OF RIFLE SQUAD

POSITION TITLE	NO.	GRADE	ANNUAL COST (FY 91 \$)	ANNUAL COST (FY 92 \$)
Squad Leader	1	E-6	50,778	52,824
Fire Team Leader	2	E-5	42,783	44,507
Automatic Rifleman	2	E-4	36,534	38,006
Grenadier	2	E-4	36,534	38,006
Rifleman	2	E-3	29,447	30,634
<b>TOTAL SQUAD</b>	<b>9</b>	---	<b>37,930 (ave)</b>	<b>39,461 (ave)</b>

Cost Elements/Factors. Personnel costs as developed by AMCOS include 11 separate components. Each component in turn may include several subcomponents. These 11 components include: military compensation (i.e., basic pay, basic housing, variable housing, and basic subsistence), retirement pay accrual, reenlistment bonus, special pay, training (i.e., individual), recruitment, medical support, morale welfare and recreation benefits, permanent change of station, G.I. Bill benefits, and Other to include government FICA contributions and miscellaneous other expenses. The training component of AMCOS personnel costs covers all individual training costs, to include: initial training, specialized skill training, and NCO professional training. This component does not include any unit or Field Training Exercise (FTX) costs. For some components, costs are actually incurred on a recurring annual basis, for example: military compensation, special pay, and medical support. Costs for other components, to include training

(individual), retirement, recruitment, permanent change of station, and G.I. Bill benefits, are incurred or accrue on a life cycle or some other nonannual basis. For example, recruitment costs are onetime costs and are actually incurred before the individual enters the service. Other costs, like individual training to include initial recruit training, initial skill training, and other specialized skill training, and permanent change of station costs are incurred once or periodically throughout an individual's career. Finally other costs, like retirement pay and G.I. Bill benefits, are actually incurred after the completion of military service and only for those who qualify for retirement benefits and those who take advantage of G.I. benefits. Costs for components which are incurred on a life cycle or some other nonannual basis are converted into an average current annual cost based on historical data, appropriate planning factors and assumptions, and actuarial methods. For example, if the average permanent change of station cost for an E4 11B infantryman were \$1,500 and the station duty cycle were three years, then the annual permanent change of station cost per E4 infantryman would be \$500.

**TABLE 3. SUMMARY OF AVERAGE PERSONNEL COSTS (FY 92\$) PER RIFLE SQUAD MEMBER**

<b>COST COMPONENT</b>	<b>AVE. ANNUAL COST (\$)</b>	<b>% TOTAL COST</b>
Military Compensation	20,317	51.4
Retired Pay Accrual	6,133	15.6
Training	3,788	9.6
Medical-Military and CHAMPS	3,070	7.8
Recruitment	2,556	6.5
Other Benefits (-less clothing allowance)	1,999	5.1
All Other Elements (each less than 2% total)	1,598	4.0
<b>TOTAL</b>	<b>39,461</b>	<b>100.0</b>

Table 3. summarizes the average annual personnel costs per rifle squad member. These costs are both grade and MOS dependent and are developed in Appendix A based on the composition and grade mix of the rifle squad as listed in Table 2. For a more detailed breakdown of costs by component and subcomponent by grade level, see Table A-2. As shown, the average direct annual personnel cost for the current Soldier System is \$39,461. The two dominant personnel cost drivers are military compensation and retirement pay accrual which together represent 67% or 2/3rds of all personnel costs. The other significant cost components include: individual training (9.6%), medical support (7.8%), recruitment (6.5%), and the category Other Benefits (5.1%). Within AMCOS, the cost component Other Benefits, includes the annual clothing allowance. For the purposes of this analysis, the clothing allowance cost is excluded from the personnel component Other Benefits and presented as a separate component under the category SOLDIER EQUIPMENT/SUPPLY COSTS. Each of the other components represent less than 2% of total personnel costs.

## SOLDIER EQUIPMENT/SUPPLY COSTS

Assumptions/Approach. This category comprises four separate subcategories to include: individual soldier clothing (personnel), individual soldier equipment (unit), supplies directly consumed by the soldier during field training exercises (FTXs), and rifle squad level equipment.

Individual soldier clothing is considered to be personal property of the soldier and comprises the initial issue of clothing or clothing bag received by the individual soldier upon entering the service. The individual soldier is responsible for repairing or replacing these items as necessary.

Individual soldier equipment includes all individual clothing and equipment that may be issued to the soldier but for which the unit retains responsibility. Individual soldier equipment is environment dependent and includes those items which are issued to all squad members. For this analysis, individual soldier equipment was based on the temperate climate basic load for the rifleman and includes items that provide environmental protection, ballistic protection, chemical protection, and other individual equipment items. The M16 rifle is normally viewed as the infantry soldier's individual weapon. However a nine person rifle squad is authorized seven M16 rifles, two semiautomatic weapons (M249), and two 40 mm grenade launchers (M203). Therefore for this analysis, the M16 is included and costed with the other weapon systems under squad equipment. The resulting cost for all squad weapons is then allocated back across all squad personnel.

Individual soldier supplies include those items directly consumed by rifle squad members during unit field training or individual weapons training. For this analysis supply cost components include ammunition, rations, and the chemical protective overgarment only.

Squad equipment includes those equipment items which vary among squad members (i.e., authorization level of less than one per squad member). Examples of squad equipment include weapons (M16 rifle, 40 mm grenade launcher, 5.56 mm machine gun), radio, telephone, and night vision devices. Total costs for squad equipment are determined, to include procurement and annual costs, and are then prorated back equally to all nine rifle squad members.

Cost Elements/Factors. Annual costs associated with individual soldier clothing, individual soldier equipment, and individual soldier supplies are developed based on the applicable item unit costs, wear lives, training allowances, and training schedule.

Upon entry into the service, each individual is issued an initial set of military clothing, or a clothing bag. These items are considered to be the soldier's. The individual soldier is then responsible for cleaning, maintaining, repairing, and/or replacing this clothing as necessary. For this analysis, all rifle squad members were assumed to be males. A detailed listing of the items, quantities, and associated unit costs for the items included in this initial set of clothing is provided in Table B-1. As shown in Table B-1, the total cost for the initial issue of clothing for males is \$875.75. To maintain and replace these items as necessary due to normal wear, each individual soldier is provided an annual clothing allotment. Items are replaced as necessary thru individual

purchases at clothing supply locations such as the Army and Air Force Exchange System. Based on the total cost for the initial clothing set, and the annual clothing allotment, the AMCOS database develops an annual clothing allowance cost for each grade. As detailed in Table A-2, the resulting annual clothing allowance cost in FY91 dollars is \$410 for E-3 rifle squad members and \$227 for E-4 thru E-6 squad members. Based on the rifle squad grade mix, the average annual individual soldier clothing cost is \$279 (FY92\$).

Individual soldier equipment includes those individual clothing and equipment items that are issued and utilized by the individual soldier but for which the unit maintains responsibility. A detailed listing of these items, based on a rifleman's basic load, is provided in Table B-2. A sample listing of the items includes: wet weather poncho, personnel armor system ground troop (pasgt) vest and helmet, alice pack, shelter half, and sleeping bag. These items essentially require no or at most minimal unit or self maintenance and are simply replaced as necessary due to normal wear and tear or loss. Replacement items due to normal wear and tear are paid for with unit funds. The chemical protective overgarment (CPO), an individual soldier equipment item, is not included in Table B-2. Rationale for this omission is that annual consumption of CPOs is tied to chemical training levels rather than replacement due to normal wear and tear. Therefore costs for CPOs are accounted for later under Individual Soldier Training Supplies. Annual costs for individual soldier equipment items are estimated based on item unit costs and associated wear lives or replacement rates. Wear lives for most items in Table B-2 were provided by the U. S. Army Support Activity-Philadelphia. As detailed in Table B-2, the total investment cost for a complete set of individual soldier equipment is \$1,013 with an associated annual cost impact of \$457 per Soldier System.

The individual soldier supply category includes rations consumed during unit field training, chemical protective overgarments expended during chemical training, and ammunition consumed by rifle squad members during field training or individual weapons training. Annual costs for individual soldier supplies are primarily dependent on unit training budgets and resulting impact on training schedules and policies (e.g. number training days, ration mix, level live firing, etc.) and item unit costs. Costs associated with any other supplies consumed by the individual or unit during unit training, are accounted for under the category UNIT TRAINING.

The total annual cost for individual soldier supplies is estimated at \$2,662 to include \$1,467 for ammunition, \$1,088 for rations, and \$107 for chemical protective overgarments. For detailed development of these annual costs, see Table B-3, Individual Soldier Training Supplies. Ration costs were estimated based on an assumed 90 field training days per year and an assumed ration mix of one Meal, Ready-to-Eat, one T Ration (module) meal, and one B Ration (unitized) meal per rifle squad member per day. The cost of field training for rations excludes any reimbursements to the government by soldiers who are also receiving a basic allowance for subsistence (Note: Assuming 50% of soldiers are on BAS the reimbursement would amount to about \$165 per soldier). Ammunition costs per Rifle Squad were estimated based on the mix of squad authorized weapons and the annual training allowance per weapon. Actual ammunition consumption may be lower due to overall training budgets. Squad-level ammunition costs were allocated equally across all squad members. Chemical protective overgarment costs were estimated based on an assumed use of one per individual per year for chemical training purposes.

Annual cost for squad equipment consists of two components, to include: replacement cost and support cost to cover replacement/repair parts and maintenance personnel impacts external to the unit. Squad equipment, for example weapons, radios, and night vision devices are more complex and generate requirements for replacement parts and/or maintenance personnel impacts external to the unit. These type costs are typically referred to as operations and support costs. Procurement and associated estimated annual cost impacts for rifle squad equipment items are detailed in Table B-4 Rifle Squad Equipment Cost. Annual replacement costs are estimated based on unit procurement costs and each item's economic life. Based on efforts to date, no known central information/data source has been identified to estimate annual operations and support (O&S) cost impacts for rifle squad type items. Therefore, the resulting estimates are based on discussions with material developers, data for other similar type items, or in absence of any information, set equal to 10% of the item cost as assumed by the TAFCS model. The resulting procurement and annual cost impacts, as developed in Table B-4 per rifle squad soldier for squad equipment is \$6002 (procurement) and \$866 (annual). About 80% of the procurement cost impact is attributable to the two night vision devices to include goggles at \$6,000 each and sights at \$2,521 each.

Table 4 summarizes the investment or procurement and associated annual costs for current soldier system equipment and supplies.

**TABLE 4. SUMMARY SOLDIER EQUIPMENT AND SUPPLY COSTS**

<b>COST COMPONENT</b>	<b>INVESTMENT COST (\$)</b>	<b>ANNUAL COST(\$)</b>
Individual Clothing (Personal)	\$876	\$279
Individual Equipment (Unit)	1,014	457
Squad Equipment	6,002	866
Soldier Supplies	---	2,662
<b>TOTAL</b>	<b>7,892</b>	<b>4,264</b>

#### **INFANTRY BATTALION (LIGHT) SUPPORT COSTS**

Assumptions/Approach. This category consists of three separate cost components, to include: Rifle Company, Infantry Battalion (L) support personnel costs, Headquarters & Headquarters Company, Infantry Battalion (L) support personnel costs, and Infantry Battalion (L) annual unit training costs. Unit support personnel costs for the current soldier system were estimated based on the breakout of combat and support personnel in an Infantry Battalion (Light) and the annual personnel costs associated with the grade and MOS of each support personnel.

An Infantry Battalion (Light) (TOE 07-015L000) includes one Headquarters and Headquarters Company (TOE 07-016L000) and three Rifle Companies(TOE 07-017L000). Each of these companies is composed of an assortment of various combat and support personnel. Examples of unit support personnel include: administrative personnel, vehicle operators, supply specialists, and medical specialists. These unit support personnel exist solely to directly support unit combat personnel, unit equipment, and/or other unit support personnel who are supporting

unit combat personnel (i.e., support to the support). In essence, if there were no infantry battalion combat personnel, then there would be no need for the associated unit support personnel. Therefore, all personnel costs associated with unit support personnel are allocated back to the unit combat personnel. In addition, the Infantry Battalion (L) is a combat unit with a combat mission. Unit training expenses are incurred to maintain necessary unit combat readiness. If there were no unit combat personnel, there would be no need for unit training. Therefore, for the same reason as above, annual unit training costs are allocated back to unit combat personnel only.

Cost Elements/Factors. For this analysis, the three components of unit support costs are rifle company support personnel, battalion headquarters support personnel, and battalion unit training. Classification of rifle company and headquarters company personnel as combat or support personnel was based on a review of position descriptions and associated Military Occupational Skill (MOS) identifiers as detailed in each unit's Table of Organization and Equipment. The resulting detailed classification of positions for the Rifle Company and Headquarters Company is provided in Tables C-1 and C-2 of Appendix C. Personnel costs associated with each grade and position were extracted from the AMCOS model.

**TABLE 5. INFANTRY BATTALION (LIGHT) SUPPORT SUMMARY**

DATA ELEMENT	RIFLE CO. (X3)	HQ & HQ CO.
No. Unit Support Personnel	36	104
Annual Cost (FY91\$) of Support Personnel	\$1,512,000	\$4,729,000
Annual Cost (FY92\$) of Support Personnel	\$1,573,000	\$4,920,000
No. Combat Troops Supported	354	416
No. Support Personnel/Combat Troop	0.102	0.250
Unit Support Costs/Soldier System	\$4,444	\$11,827

The resulting classification and allocation of unit support personnel costs is summarized in Table 5. Unit support personnel costs were allocated back to unit combat personnel (i.e., soldier systems) as follows. Within the Rifle Company, unit support personnel were allocated back to Rifle Company combat personnel. Within the Headquarters Company, unit support personnel were allocated back across all battalion combat personnel. Rationale for this approach is that headquarters company support personnel provide support to all battalion personnel and not just headquarters company personnel. As shown in Table 5, the resulting unit support costs per Soldier System are 0.102 personnel and \$ 4,444 at the Rifle Company level and 0.250 personnel and \$11,827 at the Headquarters Company level.

Annually, each unit conducts various levels and types of unit training to maintain their assigned combat readiness posture. This training may consist of battalion level, company level, or lower level field training exercises, firing range/weapons training, and or other appropriate types of unit training. For this analysis, total annual unit training costs per soldier system were derived based on the annual unit training cost for an Infantry Battalion (L) and the breakout of battalion combat and support personnel. Annual unit training costs utilized are from TAFCS and represent

the composite FORSCOM rate for an Infantry Battalion(L). Some of the components of annual unit training costs include training ammunition, supplies and equipment, transportation to training sites, mission travel, ground operations (i.e., petroleum, oil, and lubricants (POL); repair parts, consumables), and others.

**TABLE 6. OTHER BATTALION LEVEL TRAINING COSTS**

<b>COST FACTOR</b>	<b>ANNUAL COST (\$)</b>
Total Unit Training Costs (FY 91\$)	\$1,404,000
Total Unit Training Costs (FY 92\$)	\$1,461,000
Allocated Supply Costs (416 x \$1,617)	\$1,107,000
Unallocated Training Costs	\$ 354,000
Number Combat Soldiers	416
Cost per Unit Combat Soldier	\$ 851

The resulting annual Infantry Battalion unit training cost per Soldier System is derived in Table 6. Based on TAFCS, the average annual unit training cost for an Infantry Battalion (L) is \$1,461,000 (FY92\$). This cost includes the annual cost of field rations, ammunition, and the chemical protective overgarment directly used by the Soldier System. These costs are broken out and detailed separately under the category SOLDIER EQUIPMENT/SUPPLIES. For this analysis, it was assumed that all battalion combat personnel consume these items at the same rate as that utilized for rifle squad members. To avoid double counting of unit training costs, those costs broken out and accounted for under SOLDIER EQUIPMENT/SUPPLIES are subtracted from overall unit training costs. The remaining unit training costs are then allocated over all battalion combat personnel. Prior estimated Rifle Squad ammunition usage was estimated based on training allowances per weapon. If actual usage is lower than allowable quantities, then allocated soldier supply costs would decrease, which would increase remaining other unit training costs. As shown in Table 6, estimated annual other unit training cost per Soldier System is \$851. This cost covers the cost of these same items ( rations, ammunition, and CPO) for the unit support personnel and all other unit training expenses (i.e. transportation, POL, repair parts, etc.).

#### **INFANTRY DIVISION (LIGHT) SUPPORT COSTS**

Assumptions/Approach. An Infantry Division (Light) (TOE 77-000L000) consists of a mix of combat, combat service, and combat support units. Division units were categorized as either combat or noncombat units. Units normally involved in direct fire engagements were classified as combat units while other division combat service and combat support units were classified as noncombat units. For example, within an Infantry Division (Light), the Supply and Transportation Battalion, Maintenance Battalion, Medical Battalion, and Division Band are categorized as division noncombat units; the Infantry Battalions, Division Artillery, Division Aviation, and other similar units are viewed as division combat units. Division noncombat units exist solely to support division combat units and/or other division noncombat units who are directly supporting division combat units (i.e., support to the support). That is, if the Division's

combat units were eliminated, there would be no requirement for the associated Division noncombat units.

Infantry Division (Light) support costs per Soldier System were developed as follows. Each unit within the infantry Division (Light) was reviewed and categorized as either a combat unit or a noncombat unit based on the unit's primary mission or function. Division support costs for the Soldier System were determined based on the ratio of division noncombat unit to division combat unit personnel strengths, infantry battalion personnel per Soldier System, and an average annual cost per noncombat unit personnel.

Cost Elements/Factors. The composition of an Infantry Division (Light) in terms of type and quantity of each unit is delineated by Table of Organization and Equipment 07-000L000. To maintain an existing unit in the force structure, various costs are incurred by the Army. By a significant margin, the dominant unit cost driver is unit personnel costs, which consist of basic pay and allowances, individual training, and other factors previously delineated. For an existing unit, personnel costs typically represent about 75% of total unit costs. Other components of unit costs include annual unit training, base operations, Army family housing operations and maintenance, and other support costs. Total annual costs incurred to maintain existing division support units (i.e., fully staffed and fully equipped) were extracted from the TAFCS model. Costs were extracted at the rolled up unit level. Personnel costs in the TAFCS model are lower than those in the AMCOS model. The reason for this is that the TAFCS excludes prior incurred investment type costs, for example recruitment and individual training, while AMCOS includes these and amortizes them over each individual's expected career. AMCOS costs more closely reflect actual average annual costs incurred by the Army. Therefore the TAFCS costs associated with division support units (and later nondivision support) understate actual costs incurred by the Army.

Development of Infantry Division (Light) noncombat unit support costs per Soldier System is detailed in Table 7. For a detailed breakout of the classification of all Infantry Division (Light) units, to include each unit's annual cost impact, see Table C-4. As shown, division noncombat unit support equates to 0.558 personnel and an associated annual cost impact of \$23,698 per year.

TABLE 7. INFANTRY DIVISION (LIGHT) NONCOMBAT UNIT SUPPORT

ITEM NO.	ELEMENT DESCRIPTION	FACTOR
1.	Noncombat Unit Strength	3,229
2.	Combat Unit Strength	7,816
3.	Div. Noncombat Unit / Combat Unit Strength Ratio (1 ÷ 2)	0.413
4.	Infantry Bn Support Personnel Per Infantry Squad Member	0.352
5.	Total Infantry Bn Personnel per Infantry Squad Member	1.352
6.	Div. Noncombat Unit Personnel/Infantry Squad Member (3 x 5)	0.558
7.	Cost per Div. Noncombat Unit Personnel	\$42,470
8.	Div. Noncombat Unit Cost per Infantry Squad Member (5 x 6)	\$23,698
9.	Total Division Support Personnel Per Infantry Squad Member (4 + 6)	0.910

## ECHELON ABOVE DIVISION SUPPORT COSTS

Assumptions/Approach. The size and composition of a required combat force for a given scenario is dependent on many factors, including the enemies' force structure, type and mix of weapons, terrain/geography, mission objective, and an assortment of other high-level planning factors. However, once determined, the resulting combat force in turn generates the need for an Echelon Above Division (EAD) or nondivisional support force structure. Types of units included in this EAD force structure include: medical, transportation, supply, maintenance, engineers, quartermaster, and assorted other type units. These EAD units are an essential component of the overall deployed force structure and are necessary to support and ensure overall mission success.

The composition and mix of EAD units for a given combat force structure is scenario dependent. That is, the EAD force structure required to support an Infantry Division (Light) may vary significantly in size and composition from one scenario to another. For example, the number and type of medical units is dependent on the expected number of casualties, quantity of transportation units is dependent on expected ammunition firing rates and the in-theater supply system and associated distances, and so on. However, an appropriate mix of EAD units needs to be planned, programmed, and included in the overall force structure to potentially support the combat unit in a wide variety of potential conflict situations and missions.

The assistance of the U.S. Army Concepts Analysis Agency was requested to determine the number and type of EAD units required by Standard Requirement Code (SRC) to support an Infantry Division (Light) in a generic campaign. CAA utilized the Force Analysis Simulation of Theater Administrative and Logistics (FASTALS) Model to determine generic EAD support force requirements. FASTALS model runs were based on the SRA-99 Post FSC-II force tapes and the following four scenario campaigns: General Conflict Europe (GCE), Major Regional Contingency-East (MRC-E), Major Regional Contingency-West (MRC-W), and Lesser Regional Contingency (LRC). Common EAD force structure requirements for an Infantry Division (Light) were determined based on the above four separate scenarios, various planning assumptions, and 16 FASTAL model runs.

Cost Elements/Factors. The common EAD force structure to support an Infantry Division (Light) for a generic campaign based on the above four scenarios as determined by CAA is detailed in Table D-1 by type unit and quantity each. This force structure represents the common EAD force structure regardless of campaign. Each specific scenario campaign generated additional personnel and unique force structure requirements ranging from 856 personnel for GCE to 3,582 personnel for MRC-W. In addition to primarily support type units, the EAD included artillery or combat units. Annual costs per unit, as available, were extracted from the TAFCS model. The TAFCS included unit costs for over 80% of the EAD force structure strength. For units not in the TAFCS database, an annual unit cost was determined based on an average cost per person for those units in the database, and each unit's strength. Table 8 summarizes the composition of the common EAD support unit force structure. An Infantry Division (Light) with 11,045 total personnel generates a EAD support unit force structure (excluding EAD artillery) of an additional 8,897 personnel. As shown, engineer, medical, and maintenance units comprise about 70% of this required force structure.

**TABLE 8. COMPOSITION OF ECHELON ABOVE DIVISION (EAD) SUPPORT STRUCTURE**

CATAGORY AND TYPE UNITS	FORCE STRUCTURE	
	NO. TROOPS	% TOTAL
05 - Engineers	2,665	30.0
08 - Medical	2,155	24.2
43 - Maintenance	1,300	14.6
55 - Transportation	416	4.7
63 - Support Command	310	3.5
42 - Supply	308	3.5
10 - Quartermaster	296	3.3
03 - Chemical	268	3.0
19 - Military Police	229	2.6
All Other Categories (each less than 2.5%)	950	10.6
<b>TOTAL</b>	<b>8,897</b>	<b>100.0</b>

EAD support units exist in the force structure solely to support division forces, EAD combat units, or other EAD support units. Therefore, costs associated with EAD support units are allocated back across both division personnel and EAD combat unit personnel. The methodology and development of EAD support unit costs relative to the Soldier System are detailed in Table 9. Based on infantry battalion and infantry division noncombat unit support personnel, there are 1.910 infantry division personnel per Soldier System. This translates into an additional EAD support unit impact of 1.300 personnel and \$53,866 per Soldier System per year.

**TABLE 9. ECHELON ABOVE DIVISION (EAD) SUPPORT UNIT SUMMARY**

ITEM NO.	ELEMENT DESCRIPTION	FACTOR
1.	EAD Support Unit Strength	8,897
2.	EAD Support Unit Annual Cost (M\$)	368.65
3.	Cost per EAD Support Unit Troop (2 ÷ 1)	\$41,435
4.	Personnel Supported-Division	11,045
5.	-EAD Combat Units	2,044
6.	Total Personnel Supported (4 + 5)	13,089
7.	EAD Support Unit Personnel per Troop Supported (1 ÷ 6)	0.680
8.	Infantry Division Personnel per Infantry Squad Member	1.910
9.	EAD Support Unit Personnel per Infantry Squad Member (7 x 8)	1.300
10.	EAD Support Unit Cost per Infantry Squad Member (3 x 9)	\$53,866

## DISCUSSION AND CONCLUSIONS

The Soldier System consists of the INDIVIDUAL and all the EQUIPMENT and SUPPLIES that are worn, carried, or consumed by him or her to include clothing, protective equipment, individual weapons, ammunition, rations, water, etc. Sustainment of the combat Soldier System consists of sustainment of the individual (i.e., pay, benefits, allowances, training, retirement etc.), sustainment of the soldier's equipment (i.e. maintain, repair, replace), and sustainment of SUPPORT PERSONNEL in the force structure to support and maintain the Soldier System.

Based on the framework developed, the resulting annual cost impact, which includes dollars and support personnel, is summarized in Table 10. As shown, from a system perspective, the baseline Light Infantry Soldier System costs \$138.3 K per year. This cost is primarily attributable to the Soldier's personnel costs (\$39.5K), and support elements in the force structure to support and maintain the Soldier System (\$94.7K). On a per Soldier System basis, this support force breakout includes: 0.352 personnel and \$17.1K at the Infantry Battalion level, 0.558 personnel and \$23.7K at the Infantry Division level, and 1.300 personnel and \$53.9K at the Echelon Above Division level. In total, each current Soldier System generates an additional requirement for 2.21 personnel. From a Soldier System perspective, current soldier system equipment and supply costs represent about 1% and 2% of total Soldier System cost, respectively.

**TABLE 10. ANNUAL COST (\$, PERSONNEL) PER SOLDIER SYSTEM**

COST ELEMENT	PROCUREMENT COST (\$)	ANNUAL COST (\$)	NO. PERSONNEL
INDIVIDUAL SOLDIER PERSONNEL COSTS		39,461	1.000
SOLDIER EQUIPMENT/SUPPLY COSTS		4,183	-----
Ind. Soldier Clothing(Personnel)	876	(279)	-----
Ind. Soldier Equipment(Unit)	1,014	(457)	-----
Ind. Soldier Supplies		-----	-----
Rations		(1,008)	-----
Ammunition		(1,467)	-----
Chemical Protective Overgarment		(107)	-----
Squad Equipment	6,002	(866)	-----
INFANTRY BATTALION (LIGHT) SUPPORT		\$17,122	0.352
Rifle Company Support		(4,444)	(0.102)
Hq & Hq Company Support		(11,827)	(0.250)
Unit Training		(851)	-----
INFANTRY DIVISION (LIGHT) SUPPORT		23,698	0.558
ECHELON ABOVE DIVISION		53,866	1.300
<b>TOTALS</b>	<b>7,892</b>	<b>138,331</b>	<b>3.210</b>

How and where will technology likely impact the cost of future soldier systems?

The current soldier's individual equipment items (which include clothing) are relatively simple and at most receive minor repairs as required or are discarded and replaced as necessary. Equipment costs, to include procurement and annual support costs, for future soldier systems are likely to be significantly higher than those for the current soldier system due to the incorporation of advanced technologies. For example, future soldier systems are likely to incorporate individual soldier computers, heads-up mounted displays, target acquisition devices, communication devices, advanced protection systems, or other advanced technology items. In addition to higher procurements costs, these items are likely to generate considerably higher operations and support costs due to the need for maintenance, and repair/replacement of components or modules as necessary. From a system perspective, however, a 500% increase in soldier equipment/clothing costs translates into only a 6% increase at the Soldier System level, which is relatively insignificant.

The technology incorporated in future soldier equipment and the resulting impact on soldier capabilities may increase the level and associated cost of both the soldier's initial training and specialized skill training requirements. However, the opportunity for training capabilities embedded within future soldier system equipment (e.g., soldier computer and heads-up mounted displays) may at the same time facilitate more cost-effective individual training programs than those afforded by current methods.

No significant changes are expected in the per unit cost of rations and ammunition for future soldier systems. However, future systems will likely generate an added supply requirement (and thus cost) for batteries to power the various soldier equipment items. At the same time, the advanced technologies incorporated in the future soldier's individual equipment may reduce the level of unit and individual training required and the amount of ammunition and ration supplies consumed. For example, a soldier with a rifleman's computer and helmet-mounted heads-up display may be able to develop necessary marksman skills with fewer actual fired rounds. These same items with embedded training aids could also reduce the level (i.e., number of days) of unit field training required to maintain a given readiness status. Fewer field training days translate into reduced field ration costs and reduced overall unit training costs.

Based on the above, the following conclusions are offered:

1. From a system perspective, equipment and supply costs for the current Soldier System are minimal.
2. Significant increases in future Soldier System equipment and supply costs translate into only minor increases at the individual system level.
3. A 500% increase in soldier equipment cost need generate only a 6% increase in soldier effectiveness to be cost-effective.

## APPENDIX A.

### DEVELOPMENT OF PERSONNEL COSTS FOR A RIFLE SQUAD OF A RIFLE COMPANY (LIGHT) (TOE 07-017L000)

Personnel costs for the present day Soldier System are derived based on the weighted annual personnel cost impacts for the members of a Rifle Squad in a Rifle Company (L). This Rifle Squad consists of nine members. Each squad member's Military Occupational Skill (MOS) identifier is 11B or infantryman. The composition of each squad in terms of positions, grades, and number of personnel is presented in Table A-1.

TABLE A-1. RIFLE SQUAD COMPOSITION

POSITION	GRADE	STRENGTH
Squad Leader	E-6	1
Fire Team Leader	E-5	2
Automatic Rifleman	E-4	2
Grenadier	E-4	2
Rifleman	E-3	2
<b>TOTAL</b>	---	<b>9</b>

Personnel costs for the Rifle Squad members are based on the Army Manpower Cost System (AMCOS). AMCOS is an Army Research Institute manpower cost estimation model developed by Systems Research and Applications Corporation. Applications of the AMCOS model include estimates of life-cycle manpower costs of weapon systems and force structure and cost-effectiveness of personnel policies.

Personnel costs as developed by AMCOS include 11 separate cost components. Each component in turn may consist of multiple cost elements. A brief description of each cost component follows. The resulting cost for each component represents an average annual cost for the Army for a given MOS and grade. Specific personnel cost components may be incurred annually by all personnel (e.g., basic pay, basic allowance for quarters, etc.), others may be incurred on a personnel life cycle basis (e.g., recruitment, basic training, etc.) or some other non-annual basis, while others may be actually incurred by only a portion of the force structure (e.g., variable housing allowance, G.I. Bill benefits, retirement pay, etc.) Costs which are incurred on a life cycle or other nonannual basis, or only by a portion of the force structure are converted to an average annual cost for each MOS and grade based on appropriate amortization and other conversion techniques. For example, a variable housing allowance (VHA) is paid only to military members receiving basic allowance for quarters (BAQ) whose families reside in high cost housing areas in the United States. Also the amount of the VHA payment varies by location. The average VHA cost for a particular MOS and grade is obtained by summing the VHA payments to all personnel with the MOS and grade and then dividing by the total inventory of personnel with the

MOS and grade. For a more in-depth description of each cost component to include the assumptions, cost estimating methodology to determine average annual cost, and all associated variables/factors, refer to "Army Manpower Cost System Active Component Cost Estimation Model Version 6.0 Information Book," by Systems Research and Applications Corporation, April 1991.

Military Compensation. Military compensation consists of all variable costs that provide Basic Pay (BP), quarters (BAQ) and subsistence (BAS) allowances, and variable housing allowances (VHA). Basic pay is a variable cost that provides basic compensation and length of service pay increments for soldiers on active duty. Basic pay is a function of pay grade and length of service. Basic Allowance for Quarters (BAQ) is paid military members who do not occupy government housing or who occupy government housing that is not adequate. Basic Allowance for Subsistence (BAS) represents the cost of food for personnel subsisting in government dining facilities and cash payments to military members in lieu of government meals. The Variable Housing Allowance (VHA) represents an additional amount paid to military members receiving BAQ who reside in a high cost housing area in continental United States (CONUS).

Retired Pay Accrual. This component provides the funds for the DoD's contribution to the military retirement fund. Based on the accrual concept which became effective in FY85, each Service budgets for retired pay in the Military Personnel account and transfers funds on a monthly basis to the Military Retirement Trust Fund from which payments are made to retired military personnel. Accrual amounts are based on the basic pay for a given grade and DoD actuarial data.

Selected Reenlistment Bonus. This component consists solely of any reenlistment bonuses. This component is both MOS and grade dependent.

Special Pay. This cost component consists of several elements to include: hazardous pay, sea/foreign duty, medical personnel, diving duty, overseas allowances, language proficiency pay, family separation allowance, and special duty assignment pay.

Training. This component includes all individual training costs to include initial training (i.e. recruit training, initial skill training, and one station unit training), other specialized skill training, and NCO professional training. This component does not include unit (i.e. FTX) training costs.

Recruitment. This component consists of all costs of recruiting and processing enlisted personnel into the Army to include: recruiters, enlistment bonuses, targeted educational benefits, advertising, market research, recruiting facilities, examinations, accession travel and USAREC Operations costs. This cost component is MOS dependent.

Medical Support. Medical support costs are broken into two separate pieces, the cost of the Civilian Health and Medical Program for the Uniformed Services (CHAMPUS) and the cost of care in the military hospitals. For a variety of reasons, military medical support costs currently exclude the cost of facilities or the military pay of doctors and other military medical personnel.

**Other Benefits.** This component includes a variety of different elements to include death gratuities paid to beneficiaries, apprehension of deserters, unemployment compensation, survivor benefits, separation pay, family separation allowance, and government contribution to Social Security, and average cost of morale, welfare, and recreation benefits. Included in this cost component, but broken out separately for this Soldier System analysis is the individual clothing allowance.

**Permanent Change of Station (PCS)** The PCS component includes three categories of moves: rotational, operational, and separation.

**New GI Bill.** This component estimates the expected present value of the basic benefits associated with the new GI bill.

**Miscellaneous.** This factor includes other miscellaneous allocable costs not included in the previously defined cost components.

The annual cost impacts for rifle squad members (MOS 11B) are summarized in Table A-2, by grade and component. All of these costs represent average annual current costs incurred by the Army per military person with the particular MOS and grade. The resulting squad average cost is a weighted cost and is based on the mix of squad grades as detailed in Table A-1.

**TABLE A-2. RIFLE SQUAD PERSONNEL COST**

COST ELEMENT	E3 (2)	E4 (4)	E5 (2)	E6 (1)	SQD. AVE. FY 91\$	SQD. AVE. FY 92\$
Military Compensation	15,535	18,645	22,043	26,035	19,530	20,317
Base Pay	(10,565)	(13,055)	(15,425)	(18,622)	(13,647)	(14,197)
Basic Housing	(2,686)	(3,292)	(4,185)	(4,849)	(3,529)	(3,671)
Variable Housing	(932)	(945)	(1,081)	(1,211)	(1,002)	(1,043)
Basic Subsistence	(1,352)	(1,352)	(1,352)	(1,352)	(1,352)	(1,406)
Retired Pay Accrual	4,564	5,639	6,663	8,045	5,895	6,133
Re enlistment Bonus	0	13	32	45	18	19
Special Pay	323	503	589	747	509	530
Training	2,684	3,787	3,787	4,676	3,641	3,788
Recruitment	2,457	2,457	2,457	2,457	2,457	2,556
Medical-Military	1,192	1,630	2,393	3,010	1,856	1,931
Medical -CHAMPUS	347	841	1,702	2,398	1,095	1,139
Other(excl clothing allow)	1,058	1,477	1,529	1,666	1,416	1,473
FICA	(808)	(998)	(1,180)	(1,424)	(1,044)	(1,086)
Misc	(250)	(479)	(349)	(242)	(372)	(387)
Clothing Allow	(410)	(227)	(227)	(227)	(268)	(279)
Morale, Welfare, Recr Benefits	506	506	506	506	506	526
Permanent Change Station	245	501	546	658	472	491
GI Bill	536	536	536	536	536	558
<b>TOTAL(w/o clothing allow)</b>	<b>29,447</b>	<b>36,534</b>	<b>42,783</b>	<b>50,778</b>	<b>37,930</b>	<b>39,461</b>



## APPENDIX B.

### DEVELOPMENT OF SOLDIER EQUIPMENT AND SUPPLY COSTS

This category consists of four separate components to include: individual soldier clothing (personnel), individual soldier equipment (unit), individual soldier training supplies, and rifle squad equipment. Annual equipment and supply costs are developed based on the composition and associated authorizations for a rifle squad in a Rifle Company (Light) (TOE 07-017L000).

Individual soldier clothing is considered to be the personal property of the individual soldier and comprises the initial issue of clothing (or clothing bag) issued to the soldier upon entering the service. There are separate male and female clothing bags. Following issue, the individual soldier is responsible for maintaining, repairing, or replacing these items as necessary, for which each soldier is provided an annual clothing allowance. Items are replaced as necessary by each soldier's individual purchases at clothing supply locations such as the Army and Air Force Exchange System. For this analysis, all squad members are assumed to be males. The contents of the male clothing bag to include items, quantity, and unit costs are detailed in Table B-1. As shown, the total cost for the initial clothing issue for males is \$875.70. Based on the cost of the clothing bag, and the annual clothing allowance, the AMCOS database develops an annual clothing cost per soldier for each grade. As shown in Table A-2, the annual clothing cost in FY91 dollars is \$410 per E-3 rifle squad member and \$227 per E-4 through E-6 squad member. Based on the rifle squad mix of 2 E-3 members and 7 E-4 thru E-6 members, the average annual individual soldier clothing cost is \$279 (FY92\$).

Individual soldier equipment includes those individual clothing and equipment items that are issued and utilized by each individual soldier in the squad but which belong to the unit. For this analysis, individual soldier equipment was based on the temperate climate basic load for the rifleman and includes such items as: environmental protection, pasgt vest and helmet, sleeping bag, shelter half, and individual clothing and equipment items. Table B-2 lists the individual soldier equipment items to include the estimated wear life, unit cost and resulting annual cost. Estimated wear life was provided by the U.S. Army Support Activity-Philadelphia. These items essentially require no or at most minimal unit or self maintenance and are simply replaced as necessary due to normal wear and tear or loss. Annual costs were estimated by dividing the unit costs by the estimated wear life and then multiplying by 12 (i.e. months per year). As shown in Table B-2, the total procurement or investment cost for a complete set of individual soldier equipment is \$1,013 with an associated annual cost impact of \$457.

The M16 rifle and chemical protective overgarment (CPO) are accounted for in the squad equipment and individual soldier supply item categories, rather than the individual soldier equipment category, for the following reasons. The M16 is normally viewed as the infantry soldier's individual weapon. A nine person rifle squad, however is authorized only seven M16 rifles, two semiautomatic weapons (M249), and two 40mm grenade launchers (M203). As a result not all squad members carry an M16. Therefore the M16 is included and costed with the

TABLE B-1. INDIVIDUAL SOLDIER CLOTHING (PERSONAL)

ITEM	QNTY	COST (\$)	TOTAL COST (\$)
BAG, DUFFEL, NYLON, OG	1	13.05	13.05
BELT, CTN, WEB, BLK	2	1.15	2.30
BOOTS, CBT, LEA, BLK	2	59.65	119.30
BUCKLE, BELT, BRASS	1	0.60	0.60
BUCKLE, BELT, TRS, BLK	1	0.35	0.35
CAP, CAMO (BDU)	2	5.15	10.30
CAP, GARRISON, SERGE (AG-344)	2	6.20	12.40
COAT, ALL WEATHER, BLK	1	76.50	76.50
COAT, CAMO (TBDU)	2	19.30	38.60
COAT, COLD WEATHER, CAMO	2	48.80	97.60
COAT, CAMO (HWBDU)	2	20.95	41.90
COAT, MEN'S, SERGE, AG-344	1	111.65	11.65
DRAWERS, MEN'S, BOXER/BRIEF, BR	7	1.60	11.20
GLOVES, LEA, BLK, UNISEX	1	14.45	14.45
GLOVES, INSERTS, WI, OG-208	2	1.95	3.90
GLOVES, SHELL, COLD WEATHER	1	12.00	12.00
HANDKERCHIEFS, BR	6	0.50	3.00
NECKTIE, MENS, WI, BLK	1	1.95	1.95
PFU SWEATSHIRT	1	21.10	21.10
PFU SWEATPANTS	1	13.30	13.30
PFU TRUNKS	2	6.85	13.70
PFU T-SHIRT	2	4.15	8.30
SHIRT, MEN'S, LS, AG-415	1	13.30	13.30
SHIRT, MEN'S, SS, AG-415	2	8.65	17.30
SHOES, MEN'S, DRESS, BLK	1	33.20	33.20
SOCKS, MEN'S, BLK	3	0.90	2.70
SOCKS, MEN'S, OG-408	7	2.30	16.10
TOWEL, BATH, BR	4	3.00	12.00
TRousERS, MEN'S, SERVE, AG-344	2	24.50	49.00
TRousERS, CAMO (TDBU)	2	18.75	37.50
TRousERS, CAMO (HWBDU)	2	21.55	43.10
UNDERSHIRT, MEN'S, CTN, WHITE	2	2.75	5.50
UNDERSHIRT, MEN'S, BR436	7	2.65	18.55
TOTAL COST-PERSONAL CLOTHING	--	-----	\$875.70
ANNUAL COST-PERSONAL CLOTHING	--	-----	\$ 279

other weapon systems as squad equipment. The resulting cost for all squad weapons is then allocated back across all squad members. The consumption of CPOs is tied to the level and frequency of chemical training rather than replacement due to normal wear and tear. Therefore CPOs are included and costed as a supply item rather than an individual soldier equipment item.

Individual soldier training supplies include those items directly consumed by rifle squad members during unit field training or individual weapons training. For this analysis, supply items included ammunition, rations, and chemical protective overgarments only. Table B-3 lists the supply items, estimated annual consumption, unit costs, and resulting annual costs. As shown, the annual cost for individual soldier supplies is estimated at \$2,662 to include \$1,467 for

**TABLE B-2. INDIVIDUAL SOLDIER EQUIPMENT (UNIT)**

ITEM	WEAR LIFE (MONTHS)	UNIT COST (\$)	ANNUAL COST (\$)
PONCHO WET WEATHER	20	33.00	19.76
SUIT, CPO, WOODLAND	12	107.25	107.25
25MIL GLOVE SET	20	7.60	4.55
CVR, HELMET, CHEM PROT	19	3.95	2.50
NBC EQUIPMENT BAG	19	8.30	5.25
PASGT VEST	38	315.65	99.67
PASGT HELMET	96	131.05	16.38
CVR, HELMET, GRND TROOP	19	3.10	1.96
HELMET SUSPENSION	36	2.70	0.90
GOGGLES S/W/D	30	4.85	1.94
BAG, DUFFEL	24	13.05	5.22
CANTEEN, 1QT	33	2.55	0.93
CANTEEN COVER	36	7.05	2.35
CANTEEN CAP	33	1.45	0.53
CANTEEN CUP	38	5.65	1.78
CARRIER, INTRENCH TOOL	60	2.25	0.45
CHEM PROT OVERBOOT	20	6.80	4.07
ALICE BELT	24	7.50	3.75
SUSPENDERS INDIVIDUAL	24	8.35	4.18
LG BELT INDIV EQUIP	24	7.40	3.70
MED BELT INDIV EQUIP	24	9.40	4.70
CASE, FIELD FIRST AID	40	1.40	0.42
FIELD PACK W/O LINER	9	37.00	37.00
SHOULDER STRAPS RIGHT	30	5.50	2.20
SHOULDER STRAPS LEFT	30	5.50	2.20
STRAPS WAIST	30	4.40	1.76
CVR, FIELD PACK CAMOU	9	15.45	15.45
LINER, FIELD PACK	20	8.95	5.36
FRAME, FIELD PACK LC-1	18	25.05	16.70
MED ALICE PACK	30	25.75	10.30
LARGE ALICE PACK	30	44.35	17.74
BAG, WATERPROOF	18	8.50	5.67
MAT, SLEEPING	26	5.80	2.68
SHELTER HALF, TENT	72	42.45	7.08
POLES, SHELTER HALF	72	.95	0.16
PINS, SHELTER HALF	72	.95	0.16
TACT CB GLOVE 7MIL	7	7.10	7.10
TACT CB GLOVE 14MIL	10	6.75	6.75
SLEEPING BAG, INT COLD	36	78.75	26.25
<b>TOTAL COST-INDIV. EQUIPMENT (UNIT)</b>	—	1013.50	456.80

ammunition, \$1,088 for rations, and \$107 for chemical protective overgarments. Ammunition costs per Rifle Squad are estimated based on the mix of squad authorized weapons and the maximum annual training allowance per weapon. Actual ammunition consumption could be lower due to overall unit training budgets. Resulting squad level ammunition costs are allocated equally across all squad members. Ration costs are estimated based on an assumed 90 field training days

TABLE B-3. INDIVIDUAL SOLDIER TRAINING SUPPLIES

ITEM	ANNUAL USAGE	UNIT COST (\$)	ANNUAL COST
Ammunition			
M16 Rifles (7)			
5.56mm ball	1,142/weapon	\$ 0.25	246.40
5.56mm tracer	110/weapon	0.32	35.20
5.56mm blank	720/weapon	0.14	100.80
M16 Total			<u>2,950.50</u>
M249 SAWs (2)			
5.56mm ball	396/weapon	\$ 0.35	277.20
5.56mm blank	3,200/weapon	0.25	800.00
5.56mm mix	6,104/weapon	0.38	2,325.60
M249 Total			<u>6,516.24</u>
M203 Grenade Launcher			
TP rounds	244/weapon	\$ 3.31	1,615.28
HE rounds	5/weapon	10.98	54.90
WSP rounds	48/weapon	20.95	982.80
M203 Total			<u>3,736.28</u>
Total Squad Ammo Cost			13,203.02
Ammo Cost per Soldier			<u>1,467.00</u>
Rations (90 FTX days)			
Meal, Ready to Eat	90/soldier	\$ 5.18	466.20
T Ration	90/soldier	3.84	345.60
Unitized B Rations	90/soldier	3.07	276.30
Ration Cost per Soldier			<u>\$1,088.10</u>
Chemical Protective Overgarment	1/soldier (Chem. Training)	\$107.25	\$ 107.25
<b>Total All Supplies</b>			<b>\$2,662.35</b>

per year and an assumed ration mix of one Meal Ready-to-Eat, one T-Ration (module) meal, and one B-Ration (unitized) meal per day. Chemical protective overgarment costs were estimated based on an assumed usage of one per year for individual chemical training.

Unit training budgets affect unit training schedules and policies, for example number of field training days, ration mix, and level of live firing, which in turn impacts annual consumption. Variations in the number of actual training days or field ration mix will impact the annual cost for rations. The cost of field rations also excludes any reimbursement to the government by squad members receiving a basic allowance for subsistence. Assuming 50% of squad members receive basic allowance for subsistence (BAS), and 50% receive subsistence in kind (SIK), this reimbursement would average about \$165 per squad member. Overall unit training budgets could limit ammunition consumption to some level less than the maximum annual training allowance.

Other costs associated with unit training include transportation costs, spare parts/repair, POL, and all other unit supply items. Other unit training costs are developed based on the average FY92 total unit training costs for a FORSCOM Infantry Battalion (Light), from which the above allocated supply costs for rations, ammunition, and CPOs for unit combat personnel are subtracted. If the above assumptions overstate or understate actual individual soldier supply costs, the resulting other unit training costs are correspondingly understated or overstated. That is, total unit training costs (i.e., individual soldier supply costs plus other unit training costs) are constant and not sensitive to the assumed consumption levels or mix.

Squad equipment includes those equipment items that vary among squad members (i.e. authorization level of less than one per squad member. Examples of squad equipment include weapons (M16, 40mm grenade launcher, 5.56 mm machine gun), radio, telephone, and night vision devices. Squad equipment is more complex than individual equipment and generates requirements for replacement parts and/or maintenance personnel impacts external to the unit. Therefore, annual cost for squad equipment consists of two components, to include replacement cost based on item useful life and operations and support costs (O&S) to cover spare parts and maintenance personnel impacts external to the unit. Procurement and resulting annual costs to maintain, repair, and/or replace squad equipment are detailed in Table B-4. Annual replacement costs are estimated based on unit procurement costs and each item's economic or useful life. No known central information/database exists to estimate annual O&S costs for squad items. Therefore, the resulting estimates are based on discussions with material developers, item managers, data for similar type items, or in absence of any information, set equal to 10% of the item cost as similarly assumed by the TAFCS model. The resulting procurement and annual cost of squad equipment is \$ 6,002 (procurement) and \$ 866 (annual) per squad member. About 80% of this cost is attributable to the two night vision devices, specifically the goggles at \$ 6,000 each and sights at \$2,521 each.

TABLE B-4 RIFLE SQUAD EQUIPMENT COST

ITEM	QNTY/ SQUAD	UNIT COST(\$)	ECONOMIC LIFE (YRS)	TOTAL UNIT COST	ANNUAL COST (\$/UNIT)		REPLACE- MENT	TOTAL ANNUAL COST	MAINTAIN/ REPAIR(\$/Y)
					Est	10			
M16A2 Rifle	7	\$ 506	Est 10	\$3,542	Est	51	\$ 51	\$ 357	\$ 357
M249 SAW	2	1,570	Est 10	3,140	Est	236	157	314	472
M203 Grenade Launcher	2	\$65	Est 10	1,130	Est	57	57	114	114
Telephone Set	1	102	7	102	Est	15	15	15	15
Radio Set	1	2,283	15	2,283	300	152	152	300	300
Binoculars	1	257	5	257	0	51	51	0	0
Night Vision Sight	3	2,521	15	7,563	Est	189	168	504	567
Night Vision Goggles	6	6,000	15	36,000	344	400	400	2,400	2,064
ALL SQUAD EQPMT COST/SOLDIER	—	—	—	54,017	—	—	—	3,907	3,889
				6,002				434	432

## APPENDIX C.

### CLASSIFICATION OF INFANTRY BATTALION (LIGHT) PERSONNEL AND INFANTRY DIVISION (LIGHT) UNITS

The Infantry Battalion (Light) (TOE 07-015L000) consists of one Headquarters and Headquarters Company (TOE 07-016L000) and three Rifle Companies (TOE 07-017L000). To determine Infantry Battalion (Light) support costs per baseline Soldier System, unit personnel were categorized as combat or support personnel. Examples of unit support personnel include: administrative personnel, vehicle operators, supply specialists, and medical specialists. The classification was based on a review of the position titles and associated Military Occupational Skill (MOS) identifiers as detailed in each unit's Table of Organization and Equipment (TOE).

The classification of positions for the Rifle Company and Headquarters and Headquarters Company is presented in Tables C-1 and C-2. With one exception, all platoons, sections, or teams were classified entirely as either combat personnel or as support personnel. For these elements, the total number of combat or support personnel is summarized at the platoon, section, or team level. The one exception is the Rifle Platoon Headquarters (see Table C-1) which includes both combat and support personnel. For this platoon, the individual position titles and their resulting classification are detailed. There are three Rifle Platoon Headquarters per Rifle Company.

Annual personnel costs for combat and support personnel were extracted from the AMCOS model, which details annual costs by MOS for each grade.

Of the Rifle Company's 130 personnel, 118 are classified as combat personnel and 12 are classified as support personnel. For the Headquarters and Headquarters Company the breakout is 62 combat and 104 support personnel. Table C-3 summarizes the breakout of support personnel

**TABLE C-1. CLASSIFICATION OF RIFLE CO, INFANTRY BATTALION (LIGHT) PERSONNEL (TOE 07017L000)**

PERSONNEL	NO. TROOPS		ANNUAL COST (KS)	
	COMBAT	SUPPORT	COMBAT	SUPPORT
Company Headquarters	0	9	0	414
Antiaarmor Section	13	0	490	0
Rifle Platoon Headquarters(3)	18	3	721	90
Platoon Leader	(3)	(0)	0	0
Platoon Sergeant	(3)	(0)	0	0
Machine Gunner	(6)	(0)	0	0
Ass't Machine Gunner	(6)	(0)	0	0
Radio Telephone Operator	(0)	(3)	3	0
Rifle Squads	81	0	3,094	0
Mortor Sections	6	0	223	0
<b>TOTALS</b>	<b>118</b>	<b>12</b>	<b>4,528</b>	<b>504</b>

**TABLE C-2. CLASSIFICATION OF HEADQUARTERS COMPANY, INFANTRY BATTALION (LIGHT) PERSONNEL (TOE 07016L000)**

PERSONNEL	NO. TROOPS		ANNUAL COST (KS)	
	COMBAT	SUPPORT	COMBAT	SUPPORT
Battalion Headquarters	0	13	0	759
Company Headquarters	0	6	0	291
S1 Section	0	7	0	300
S2 Section	0	4	0	192
S3 Section	0	10	0	486
S4 Section	0	5	0	200
Battalion Communications Platoon	0	13	0	504
Scout Platoon	19	0	752	0
Mortar Platoon	27	0	962	0
AntiArmor Platoon	16	0	607	0
Battalion Support Platoon	0	18	0	623
Battalion Medical Platoon	0	27	0	1,324
Unit Ministry Team	0	1	0	0
<b>TOTAL</b>	<b>62</b>	<b>104</b>	<b>2,321</b>	<b>4,729</b>

**TABLE C-3. INFANTRY BATTALION (LIGHT) PERSONNEL SUMMARY**

UNIT	UNIT PERSONNEL		ANNUAL COST (SK)	
	SUPPORT	COMBAT	TOTAL	(SUPPORT PERS.)
Rifle Co. (X3)	36	354	390	1,512
Hq & Hq Co.	104	62	166	4,729
<b>Total</b>	<b>140</b>	<b>416</b>	<b>556</b>	<b>6,241</b>

costs at the Infantry Battalion (Light) level. As shown, the battalion consists of 416 combat personnel and 140 support personnel. Total annual cost of battalion support personnel is \$6,241 M.

For allocating battalion support costs (i.e. support personnel and unit training costs), all battalion combat personnel are treated as soldier systems. Rifle Company support personnel costs are allocated equally across all Rifle Company combat personnel, while Headquarters and Headquarters support personnel costs are allocated equally across all battalion combat personnel.

Table C-4 summarizes the classification of each Infantry Division (Light) unit as either a combat unit or a non combat unit along with the units strength and annual cost. Units normally involved in direct fire engagements were categorized as combat units while other division combat service and combat support units were classified as non-combat units. Annual costs for each unit, with the exception of the Infantry Battalions (Light), were extracted from the TAFCS model. Infantry Battalion (Light) costs were determined based on the summation of AMCOS model personnel costs and average FORSCOM Infantry Battalion (Light) unit training costs from the TAFCS model. The Infantry Division (Light) consists of 3,229 personnel in non-combat units and 7,816 personnel in combat units. The average cost per person for noncombat units is \$42,470.

TABLE C-4. CLASSIFICATION OF INFANTRY DIVISION (LIGHT) UNITS

UNIT DESIGNATION	TROOP STRENGTH	ANNUAL COST (MS)	UNIT CLASSIFICATION
Hq & Hq Co., L.I. Div.	241	13.452	Noncombat
Military Police Co.	81	3.200	Noncombat
Signal Battalion	479	18.580	Noncombat
Air Defense Artillery Battalion	315	13.884	Combat
Engineer Battalion	328	13.233	Noncombat
Hq & Hq Co., L.I. Brigade (X3)	369	16.011	Noncombat
Infantry Battalion (L) (X9)	5004	199.314	Combat
Division Artillery Brigade	1526	63.657	Combat
Division Aviation Brigade	971	58.524	Combat
Support Command, LI Div.	1344	56.884	Noncombat
Military Intelligence Battalion	346	14.186	Noncombat
Division Band	41	1.589	Noncombat
<b>TOTAL-NONCOMBAT UNITS</b>	<b>3,229</b>	<b>137.135</b>	<b>Ave. Cost \$42,470</b>
<b>TOTAL-COMBAT UNITS</b>	<b>7,816</b>	<b>-----</b>	<b>-----</b>
<b>TOTAL-ALL UNITS</b>	<b>11,045</b>	<b>-----</b>	<b>-----</b>



## APPENDIX D.

### COMPOSITION OF ECHELON ABOVE DIVISION FORCE STRUCTURE

The Echelon Above Division (EAD) force structure to support an Infantry Division (Light) in combat is scenario dependent. For this analysis, Natick requested the U.S. Army Concepts Analysis Agency (CAA) to conduct an analysis to identify the EAD units necessary to support an Infantry Division (Light) in a generic campaign.

The resulting CAA study is detailed in Memorandum Report CAA-MR-91-77, titled "Light Infantry Division Analysis of Soldier System Cost Study (LIDASSCS)." This report was prepared by the CAA Force Evaluation Directorate.

The CAA study was based on the assumptions of the Support Force Requirements Analysis (SRA-99) (CAA Memorandum Report CAA-MR-91-63) and the SRA-99 theater campaigns NATO - General Conflict Europe (GCE), Southwest Asia - Major Regional Contingency - East (MRE-E), Northeast Asia - Major Regional Contingency - West (MRC-W), and South America - Lesser Regional Contingency (LRC). Based on the above assumptions and scenarios, the resulting EAD force structures were analyzed to determine the common EAD force structure regardless of the theater of operations. The resulting common EAD force is detailed in Table D-1 and consists of 103 separate SRCs and 10,941 personnel. There exist additional unique force structure requirements for each scenario ranging from 856 personnel for NATO to 3,582 personnel for the SWA campaign.

In the report, EAD support requirements for an Infantry Division (Light) and associated annual costs are based on the common EAD force as detailed in Table D-1. Annual costs per unit, as available were extracted from the TAFCS model. The TAFCS model included unit costs for over 80% of the EAD force structure strength. For units not in the TAFCS database, an annual unit cost was estimated based on the average cost per person for those units in the database, and each units strength. The average annual cost per EAD person is \$41,216. Unit costs that are estimates are marked with an E.

TABLE D-1. GENERIC ECHELON ABCVE DIVISION (EAD) SUPPORT FORCE STRUCTURE

UNIT DESIGNATION	TOE NO.	UNIT STR.	UNIT COST(M\$)	NO. UNITS	TOTAL STR.	TOTAL COST(M\$)
ACFT MAINT TM (AUG)(LD)	01577LA0010	46	1.896	E	1.00	46
DECON CO(CORPS)	03417L00010	133	5.115	0.75	100	3.836
SMOKE/DECON CO(CORPS)	03457L00010	155	5.703	1.00	155	5.703
HHD CHEM BN(CORPS)	03476L20010	54	2.317	0.25	14	0.579
EN BN COMBAT(CORPS)	05035H50010	533	29.801	1.50	800	44.701
ASSAULT CO BRIDGE RIBBON	05079J20010	182	6.848	1.00	182	6.848
HHC GROUP EN (CORPS)	05412L20010	73	3.591	0.50	37	1.796
EN CBT HAWY BN (CORPS)	05415L00010	694	26.384	0.75	521	19.788
CBT SPT EQUIP CO	05423L00010	184	7.584	E	1.50	276
LT EQP CO (LT/ASSLT)	05443L20010	173	6.706	1.00	173	6.706
CBT BN (LT/ASSLT)	05445L20010	556	21.968	1.00	556	21.968
MED GIRDER BRIDGE CO	05463L10010	110	4.158	0.75	83	3.119
FF PLT (CBT ZONE)	05510LA0010	4	0.170	1.25	5	0.213
FF TM (FIRETRUCK)	05510LB0010	6	0.198	1.75	11	0.347
FF TM (WATER TRK)	05510LC0010	2	0.071	3.75	8	0.266
FF TM (BRUSH TRK)	05510LD0010	2	0.065	1.00	2	0.065
QUARRY 75TPH TM	05520LC0010	18	1.365	0.33	6	0.450
TERRAIN EDT(CORPS/DIV.)	05540LF0010	6	0.210	1.00	6	0.210
TERRAIN DET(DS/CMO CTL)	05540LJ0010	2	0.138	1.00	2	0.138
HB FA BDE(CORPS-J/AB/AA)	06402L20010	154	6.913	1.00	154	6.913
TGT ACQ DET(CPS-LI/AB/AA)	06413L00010	45	1.799	1.00	45	1.799
155-T BN NON-DIV	06425L20010	615	24.524	3.00	1845	73.572
SURGICAL DET	08407L10000	9	0.604	0.75	7	0.453
SURGICAL DET(ABN)	08407L20000	9	0.604	0.25	2	0.151
VET SVC DET SMALL	08419L00010	6	0.247	E	2.00	0.495
HHD MED BDE(COMMZ)	08422L20000	87	3.586	E	0.25	22
HHC MED GROUP	08432L00000	62	2.555	E	1.00	62
HHC EVAC BATTALION	08446L00010	46	2.333	0.50	23	1.167
AR AMB CO (UH 60)	08447L20000	129	7.723	1.50	194	11.585
AMB CO	08449L00000	124	4.413	1.00	124	4.413
AREA SPT BN	08455L00000	355	14.632	E	0.25	89

TABLE D-1(Cont'd). GENERIC ECHELON ABOVE DIVISION (EAD) SUPPORT FORCE  
STRUCTURE

UNIT DESIGNATION	TOE NO.	UNIT STR.	UNIT COST(M\$)	NO. UNITS	TOTAL STR.	TOTAL COST(M\$)
CBT STRESS CTRL CO	08467L00000	86	3.545	E	0.40	34
HHD DENTAL BN	08476L00000	10	0.412	E	0.25	3
DENTAL SERVICE CO	08478L00000	60	2.473	E	0.25	15
DENTAL SERVICE DET	08479L00000	28	1.154	E	2.00	56
PREV MED DET(SANTITATION)	08498L00010	11	0.477	E	0.75	8
PREVEN MED DET(ENTOMOLOGY)	08499L00000	11	0.453	E	0.25	3
HEAD&NECK SURGERY TM	08527LA0010	7	0.289	E	0.50	4
NEUROSURGERY TM	08527LB0010	7	0.289	E	0.75	5
EYE SURGERY TM	08527LC0000	7	0.289	E	0.50	4
INFECTIONOUS DISEASE TM	08533LC0000	3	0.124	E	0.25	1
CBT STRESS CTRL DET	08567LA0010	23	0.948	E	1.00	23
PROSTHODONTIC TM	08588LA0010	5	0.206	E	0.50	3
HOSP CSH UNIT(296 BED)	08705L00000	598	29.913	E	1.00	598
HOSP FIELD UNIT(504 BED)	08715L00010	854	20.106	E	0.75	641
HOSP GENERAL UNIT	08725L00000	743	30.624	E	0.25	186
LOG SUPPORT DET	08909L00000	39	1.607	E	1.00	39
AMMO CONVL DS CO	09484L00010	175	8.721	E	1.00	175
LID(AUG)TMDS	09528LP0010	18	0.742	E	1.00	18
LCSS(AUG) DS TM	09528LR0010	6	0.247	E	0.33	2
LID(AUG)TM GS	09529LP0010	4	0.165	E	1.00	4
TMDE TM GSM-286	09567LC0010	6	0.492	E	1.00	6
PET SUPPLY CO	10427L00010	202	7.228	E	1.00	202
LAUNDRY AND RENOVATION	10437H40010	148	6.100	E	0.25	37
GRAVES REGISTRATION CO	10497L00010	156	5.242	E	0.25	39
LAUNDRY SERVICE TM	10520H5FA10	7	0.236	E	2.50	18
POSTAL CO (DS)	12413L10010	43	1.593	E	0.33	14
PERS SERVICE CMD HHC	12426L00010	21	0.866	E	1.00	21
PERS SERVICE CMD DET	12427L00010	48	1.978	E	3.25	156
FINNACE SUPPORT CMD DET	14423L00010	19	1.005	E	3.25	62
FIN SPT COMD HQ	14426L00010	27	1.430	E	1.00	27
CHAPLAIN TM	16500LB00000	2	0.082	E	3.00	6
CID (LT DSE) DET	19283L20010	9	0.565	E	1.00	9

TABLE D-1(Cont'd) GENERIC ECHELON ABOVE DIVISION (EAD) SUPPORT FORCE  
STRUCTURE

UNIT DESIGNATION	TOE NO.	UNIT STR.	UNIT COST(MS)	NO. UNITS	TOTAL STR.	TOTAL COST(MS)	
HHD MP BN	19476L00010	68	2,803	E	0.25	17	0.701
MP CBT SPT CO	19477L00010	176	6,426	1.00	176	6,426	
CID DET (C,3E)	19483L00010	27	1,430	1.00	27	1,430	
ML HIST DET	20017H30010	3	0.159	1.00	3	0.159	
SVC, COLLECTN/CLASSIFIB	29139H30010	194	7,320	0.75	146	5,490	
TAC SPT CO	33708L00010	79	3,116	1.00	79	3,116	
GEN PURPOSE BN	41705L00010	142	7,010	1.00	142	7,010	
FIELD SERVICE CO	42414L00010	108	3,803	1.00	108	3,803	
GEN SPLY CO	42418L00010	142	4,872	0.50	71	2,436	
HVY MAT SPLY CO	42427L10010	162	5,528	0.25	41	1,382	
SUPPLY CO (DS)	42447L00010	143	5,188	0.25	36	1,297	
FLD BAKERY TM	42518LA0010	19	0.645	0.75	14	0.484	
PERISHABLE SUBSIST PLT	42518LB0010	83	2,924	0.25	21	0.731	
GREGG AUG(LID) PLT	42526LB0010	18	0.742	E	18	0.742	
ORD CO (MAINT)	43209L00010	200	7,918	4.00	800	31,672	
ENG EQ REPAIR TM	43509LB0010	9	0.371	E	1.50	14	0.556
TOWED ARTY FC REP TM	43509LE0010	5	0.206	E	3.00	15	0.618
WHEEL VEH REPAIR TM	43509LG0010	7	0.289	E	1.00	7	0.289
BCSS REPAIR TM	43509LJ0010	4	0.165	E	0.25	1	0.041
COMSEC REPAIR TM	43509LM0010	9	0.371	E	0.75	7	0.278
LID AUG TM	43509LP0010	34	1,401	E	1.00	34	1,401
WHEEL VEH RPR PLT	43549LC0010	37	1,525	E	2.75	102	4,194
CONSTR EQUIP RPR PLT	43549LD0010	36	1,484	E	0.75	27	1,113
ARMAMENT EQUIP RPR PLT	43549LE0010	37	1,525	E	0.25	9	0.381
POWER GEN EQ RPR PLT	43549LF0010	36	3,019	0.75	27	2,264	
QTRMSI CHEM EQ RPR PLT	43549LG0010	36	1,484	E	1.25	45	1,855
SIG COMMO EQ RPR PLT	43549LH0010	42	2,731	E	1.75	74	3,029
RADAR/DIG SP ELECT	43549LJ0010	33	1,360	E	0.50	17	0,680
COMSEC/CNTTEL/EQ RPR PLT	43549J00010	30	1,237	E	0.25	8	0,309
GS MAINT CO	43649L00010	77	3,174	E	1.50	116	4,761
PUBLIC AFFAIRS TM	45500LA0010	5	0.210	1.00	5	0,210	
TRAILER TRANS POINT DET	55540LE0010	16	0.514	0.25	4	0,129	

TABLE D-1(Cont'd). GENERIC ECHELON ABOVE DIVISION (EAD) SUPPORT FORCE  
STRUCTURE

UNIT DESIGNATION	TOE NO.	UNIT STR.	UNIT COST(M\$)	NO. UNITS	TOTAL STR.	TOTAL COST(M\$)
TERM SVC(CARGO DOC) TM	55560LA0010	8	0.276	0.50	4	0.138
LTMED TRUCK (CORPS) CO	55719L10010	179	4.933	1.00	179	4.933
MED TRK(CARGO)(40FT) CO	55727L10010	181	6.766	0.25	45	1.692
MED TRK(CARGO)(CORPS) CO	55728L10010	191	7.094	0.50	96	3.547
MED TRK (PETROL)(S000)	55728L20010	177	6.611	0.50	89	3.306
HHC CORPS SUPPORT GROUP	63422L00010	115	6.174	1.00	115	6.174
CS BN HQ	63426L00010	60	2.473	E	3.25	8.037
ATC(FWD) PLT	95227J30110	38	1.512	1.00	38	1.512
NON DIV. ARTILLERY (08)	—	—	—	—	2,044	82.284
NON DIV. OTHER (SUPPORT)	—	—	—	—	8,897	368.648
NON DIV. TOTAL	—	—	—	—	10,941	450.932



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